



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

July 8, 1996

Dr. Rainer F. Domalski
Manager Remediation Projects
Ruetgers-Nease Corporation
201 Struble Road
State College, PA 16801

Re: Centre County Kepone Superfund Site;
SVE Performance Test Report (April 1996)

Dear Dr. Domalski:

EPA has completed review of the Soil Vapor Extraction (SVE) Performance Test Report forwarded by Golder Associates, Inc. on April 5, 1996. Based on the March 22, 1996 meeting held at EPA Region 3, EPA assumed that the SVE activities documented in the report were intended to provide EPA with the basis upon which SVE could be implemented at the Site in place of the soil excavation portion of the remedy called for in the Record of Decision (ROD).

In general, the report states that implementation of SVE with hydrofracturing has limited success in meeting the objectives of the ROD. Although it remains a potentially feasible alternative for the Site, many of the conclusions and recommendations in the report are not well substantiated. General comments and concerns include the following:

1. The effectiveness of an SVE system should be based on reaching achievement of Remedial Action Objectives (RAOs) contained in the ROD. Currently, there appears to be inadequate information to determine the total amount of VOC contamination present in the Tank Farm Area. Therefore, establishing a total VOC removal volume is inappropriate. Similarly, it will also be necessary to determine the remaining levels of VOCs present in the soil profile after SVE has been conducted. A detailed soil boring program should be conducted to validate the effectiveness of the SVE system. A mass removal rate performance standard based on asymptotic performance only measures the technological performance of the SVE equipment and may not necessarily meet the RAOs for the Site.
2. One concern with the report is the overall lack of depth discrete VOC data for subsurface soils in the Tank Farm Area. The SVE modeling appears to use accurate values for soil characteristics such as permeability but assumes that

the contamination is uniformly distributed throughout the vertical axis. If SVE is to be pursued as a remedial technology in the Tank Farm Area, additional borings should be advanced to delineate the vertical extent of VOC contamination before and after SVE operation. It would be beneficial for this information to be presented in cross sections.

3. The report should also describe the criteria used to determine the locations of the four extraction wells used in this study and indicate whether comparable depth discrete VOC contamination was present at each well location. Although the VOC concentrations in soil presented for BR-2 are greater than BR-1, the vertical extent of contamination in these areas throughout the soil profile is unclear.
4. No model validation information is available. The model was calibrated using data from the short-term test, and the calibrated model was used to establish conditions for and predict the results of the long-term test. The predicted conditions should be analyzed as a function of the actual conditions for the long-term test.
5. The calibrated model parameters should be explained and discussed further in the text. The reference, assumptions, or rationale for selecting 2x as the factor between horizontal and vertical permeability should be provided. In addition, the note should explain whether this starred value applies to all permeabilities or just one particular layer. Also the report should clarify whether the term "overburden" is the same as "residual soil" or "in-situ soil". Consistent terminology should be used throughout the report.
6. The short-term performance test concluded that fracturing of overburden wells can increase extraction air flow rates by 28% (field) to 48% (model). The field measurements of air flow rates (28%) are most likely more representative to actual site conditions than the model's predicted flow rates (48%). Therefore, unless additional justification is provided from the long-term test, the report should consider 28% to be the expected increase in air flow rates because of hydrofracturing at the Site.
7. No performance test data is presented for any of the SVE tests discussed in the report. These data are critical and should include conditions in the extraction wells as well as responses in the monitoring points/piezometers. These data are important to facilitate an evaluation of system performance.
8. The report does not explain why the extraction wells are only screened in the bottom 5 feet of the overburden when

the overburden thickness ranges from 10 to 20 feet. The report should have explained the selection and advantage of this construction rather than screening the wells throughout a larger interval in the overburden.

9. The report provides no cost or data assumptions that SVE is considerably more cost-effective than excavation and off-site disposal. The cost evaluation should include all AOCs including the former drum staging area and designated outdoor storage area.
10. There are some discrepancies and inconsistencies in the report. For example, the report states on page 16 that "wells BR-1 and BR-2 are bedrock wells screened only in layer 7." Previously, the report indicated that a thickness of 4 feet was assumed for layer 7; however, the logs in Appendix A indicate that the wells were advanced about 8 to 11 feet into bedrock. These discrepancies and inconsistencies should be corrected in the report and, if appropriate, in the modeling.

For the reasons above, EPA cannot properly consider the use of SVE at the Site. However, EPA has no objections if Ruetgers-Nease Corporation decides to continue with the long-term pilot testing of SVE. Should the pilot testing continue, EPA suggests that the above concerns be addressed in any future reports.

Should RNC decide to continue SVE testing, EPA advises RNC that under no circumstances shall the pilot forestall the conclusions of settlement negotiations or entry of a consent decree.

If you have any questions regarding this matter, please call me at (215) 566-3218.

Sincerely,



Frank Klanchar
Remedial Project Manager
Western PA Remedial Section (3HW22)

cc: G. Crystall (3HW22)
P. Lazos (3RC22)
D. Overdorff (PADEP)
B. Rudnick (3HW41)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION III

841 CHESTNUT BUILDING
PHILADELPHIA, PENNSYLVANIA 19107

FAX TRANSMITTAL

PAGE 1 OF 4

DATE: 7/8/96



PROJECT: Centre County
Kepona Site

PLEASE DELIVER AT ONCE TO:

NAME: Dr. Rainer Domalski

FIRM NAME: RNC

PHONE: 814-238-2424

FAX NUMBER: 814-238-1567

FROM: Frank Klanchar

PHONE: 215-566-3218

FAX NUMBER: 215-566-3001

COMMENT/NOTE: Response letter on April 1996
SVE Performance Test Report.

AR309306